



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER PO039111

Supplier:	SAC001-VU Sacs Boysen Aerospace US, Inc. 3050 West Story Road Irving, TX 75038 USA Phone: 469- 629- 0660 Fax: N/A	PO No:	PO039111							
		PO Date:	2/23/18							
		Due Date:	3/9/18							
		Purchase Order Revision:								
		Revision Date:								
		Ship-To Contact:	Phone:							
Ship To:	1270 Aberdeen Street Hawkesbury ON K6A 1K7 Canada Phone: 613-632-5200	Pymt Terms:	Net 30							
		Freight Terms:								
		Special Comments:								
Items										
Line Item	Part	Supplier Part No	Description	Status	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (USD)	Extended Price
1	LN9037-05012		Bolt	Firmed	3/9/18	10 pcs	0 pcs	10 pcs	\$5.25/pcs	\$52.50
2	LN9037-05016		Bolt	Firmed	3/9/18	10 pcs	0 pcs	10 pcs	\$5.65/pcs	\$56.50
3	LN9439M4x12		Screw	Firmed	3/9/18	10 pcs	0 pcs	10 pcs	\$3.65/pcs	\$36.50
4	LN9016-04K		Washer	Firmed	3/9/18	10 pcs	0 pcs	10 pcs	\$1.65/pcs	\$16.50
5	LN9016-05K		Washer	Firmed	3/9/18	10 pcs	0 pcs	10 pcs	\$1.65/pcs	\$16.50
6	LN9016-06K		Washer	Firmed	3/9/18	10 pcs	0 pcs	10 pcs	\$1.65/pcs	\$16.50
7	LN9025-0620K		Washer	Firmed	3/9/18	10 pcs	0 pcs	10 pcs	\$1.75/pcs	\$17.50
8	LN9025-0305K		Washer	Firmed	3/9/18	10 pcs	0 pcs	10 pcs	\$1.75/pcs	\$17.50
9	LN9166-5.3		Washer	Firmed	3/9/18	10 pcs	0 pcs	10 pcs	\$1.25/pcs	\$12.50
10	LN9338-04		Nut	Firmed	3/9/18	10 pcs	0 pcs	10 pcs	\$2.55/pcs	\$25.50
11	LN9338-05		Nut	Firmed	3/9/18	10 pcs	0 pcs	10 pcs	\$2.75/pcs	\$27.50
12	LN9338-06		Nut	Firmed	3/9/18	10 pcs	0 pcs	10 pcs	\$2.95/pcs	\$29.50
13	LN29679AM6		Anchor Nut, Floating	Firmed	3/9/18	10 pcs	0 pcs	10 pcs	\$3.85/pcs	\$38.50
										Grand Total: \$363.50

Order Notes

★ R 3 0 0 6 5 8 5 ★

20180308-140508/jonesj



SACS Boysen Aerospace U.S. Inc. 3050 W. Story Road Irving, TX 75038 USA

Apical Industries, Inc.
dba Dart Aerospace
3030 Enterprise Court, Suite A
92081 Vista, CA
U.S.A.

INVOICE	
Please state document number for any questions:	
Document no.:	3006585
Customer Id:	50236
Document date:	03/08/2018
Page: 1	
jj/jonesj	

Your order from 26.02.18	Reference no. PO039111	Contact jj@sacs-boysen-us.aero	Lead time 08.03.18	Delivery address: Dart Aerospace Ltd.
Purchaser Hemmerich Steven		Dispatch type		1270 Aberdeen Street Hawkesbury, ON 613-632-5200 /
Against your Order and our delivery we charge as follow:				

Pos	Part Number	BatchNo.	Quantity	EA	Price per 100	Total US\$
Delivery Date: 08.03.18 [Delivery Note Number: 0314901]						
0001	LN 9037-05012	5000007278	10	pcs	525.00	52.50
	Bolt					
	GERMANY					
0002	LN 9037-05016	5000003528	10	pcs	565.00	56.50
	Bolt					
	GERMANY					
0003	LN 9439-M4X12	5000007110	10	pcs	365.00	36.50
	Screw					
	GERMANY					
0004	LN 9016-04K	5000005121	5	pcs	165.00	8.25
	Washer					
	GERMANY					
0004	LN 9016-04K	5000007570	5	pcs	165.00	8.25
	Washer					
	GERMANY					
0005	LN 9016-05K	5000007312	10	pcs	165.00	16.50
	Washer					
	GERMANY					
0006	LN 9016-06K	5000000434	10	pcs	165.00	16.50
	Washer					
	GERMANY					

-> Page 2

SACS Boysen Aerospace U.S. Inc. · 3050 W. Story Road · Irving, TX 75038 USA



Apical Industries, Inc.
dba Dart Aerospace
3030 Enterprise Court, Suite A
92081 Vista, CA
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Delivery Date: 08.03.18 [Delivery Note Number: 0314901]

0007	LN 9025-0620K Washer GERMANY	5000007966	10	pcs	175.00	17.50
0008	LN 9025-0305K Washer GERMANY	5000000388	10	pcs	175.00	17.50
0009	LN 9166-5.3 Washer GERMANY	5000000351	10	pcs	125.00	12.50
0010	LN 9338-04 Nut ITALY	5000007228	10	pcs	255.00	25.50
0011	LN 9338-05 Nut ITALY	5000008222	10	pcs	275.00	27.50
0012	LN 9338-06 Nut ITALY	5000008043	10	pcs	295.00	29.50
0013	LN 29679-AM6 Nut ITALY	5000007807	10	pcs	385.00	38.50

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SACS Boysen Aerospace U.S. Inc. 3050 W. Story Road Irving, TX 75038 USA



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dba Dart Aerospace
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Purchaser Hemmerich Steven Against your Order and our delivery we charge as follow:		Dispatch type		

Pos Part Number BatchNo. Quantity EA Price per 100 Total US\$

Delivery Date: 08.03.18 [Delivery Note Number: 0314901]

Please remit payment to:

Frost Bank
ABA 114000093 ACCT 820032921
SACS Boysen Aerospace U.S. Inc.
SWIFT Code FRSTUS44

30 Tage rein Netto
30 Days net

Total US\$ 363.50

Your VAT No:

SACS Boysen Aerospace U.S. Inc.
3050 W. Story Road
Irving, TX 75038
USA

Phone : +1 469 629 0660
Fax : +1 469 606 0921
e-mail: ak@sacs-boysen-us.aero
EIN : 99-0378377

★ R 3 0 0 6 5 8 5 ★

20180308-140508/jonesj



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	Bolt					
	GERMANY					
0002	LN 9037-05016	5000003528	10	pcs	565.00	56.50
	Bolt					
	GERMANY					
0003	LN 9439-M4X12	5000007110	10	pcs	365.00	36.50
	Screw					
	GERMANY					
0004	LN 9016-04K	5000005121	5	pcs	165.00	8.25
	Washer					
	GERMANY					
0004	LN 9016-04K	5000007570	5	pcs	165.00	8.25
	Washer					
	GERMANY					
0005	LN 9016-05K	5000007312	10	pcs	165.00	16.50
	Washer					
	GERMANY					
0006	LN 9016-06K	5000000434	10	pcs	165.00	16.50
	Washer					
	GERMANY					

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AEROSPACE U.S.

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Pos	Part Number	BatchNo.

Quantity EA Price per 100 Total US\$

Delivery Date: 08.03.18 [Delivery Note Number: 0314901]

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Frost Bank
ABA 114000093 ACCT 820032921
SACS Boysen Aerospace U.S. Inc.
SWIFT Code FRSTUS44

30 Tage rein Netto
30 Days net

Total US\$

363.50

Your VAT No:

SACS Boysen Aerospace U.S. Inc.
3050 W. Story Road
Irving, TX 75038
USA

Phone : +1 469 629 0660
Fax : +1 469 606 0921
e-mail: ak@sacs-boysen-us.aero
EIN : 99-0378377



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20180308-135839/jonesj



SACS Boysen Aerospace U.S. Inc. · 3050 W. Story Road · Irving, TX 75038 · USA

Dart Aerospace Ltd.

Steven Hemmerich

1270 Aberdeen Street

Hawkesbury, ON

USA

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jj/jonesj

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Hemmerich Steven		Dispatch type	
according our sales requirement we despatch as follow by:			

Pos	Part Number	BatchNo.	Quantity	EA
0001	LN 9037-05012	5000007278	10	pcs
	Bolt			
	GERMANY			
0002	LN 9037-05016	5000003528	10	pcs
	Bolt			
	GERMANY			
0003	LN 9439-M4X12	5000007110	10	pcs
	Screw			
	GERMANY			
0004	LN 9016-04K	5000005121	5	pcs
	Washer			
	GERMANY			
0004	LN 9016-04K	5000007570	5	pcs
	Washer			
	GERMANY			
0005	LN 9016-05K	5000007312	10	pcs
	Washer			
	GERMANY			
0006	LN 9016-06K	5000000434	10	pcs
	Washer			
	GERMANY			
0007	LN 9025-0620K	5000007966	10	pcs
	Washer			
	GERMANY			

-> Page 2

SACS Boysen Aerospace U.S. Inc. 3050 W. Story Road Irving, TX 75038 USA

Dart Aerospace Ltd.
Steven Hemmerich
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Hawkesbury, ON
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AEROSPACE U.S.

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jj/jonesj

Your order from	Reference no.	Contact	Lead time	
	PO039111	jj@sacs-boysen-us.aero		
Purchaser		Dispatch type		
Hemmerich Steven according our sales requirement we despatch as follow by:				
Pos Part Number BatchNo. Quantity EA				

0008	LN 9025-0305K Washer GERMANY	5000000388	10	pcs
0009	LN 9166-5.3 Washer GERMANY	5000000351	10	pcs
0010	LN 9338-04 Nut ITALY	5000007228	10	pcs
0011	LN 9338-05 Nut ITALY	5000008222	10	pcs
0012	LN 9338-06 Nut ITALY	5000008043	10	pcs
0013	LN 29679-AM6 Nut ITALY	5000007807	10	pcs

In case of queries please quote our delivery Note no. 0314901

-> Page 3

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Steven Hemmerich

1270 Aberdeen Street

Hawkesbury, ON

USA

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jj/jonesj

Pos	Part Number	BatchNo.	Quantity EA
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Certificate of conformity:

The manufacturer herewith confirms that production of these standard parts is in accordance with the current regulations and latest standard drawings. The material used was taken from stocks regularly tested by the manufacturer.

The manufacturer has committed himself to SACS Boysen U.S. Inc. that a certificate of conformity according to EN 10204-3.1B will be attached to each consignment. Certificates are available at SACS Boysen U.S. Inc. upon request.

SACS Boysen U.S. Inc.



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20180308-135839/jonesj



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	Bolt			
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0003	LN 9439-M4X12	5000007110	10	pcs
	Screw			
	GERMANY			
0004	LN 9016-04K	5000005121	5	pcs
	Washer			
	GERMANY			
0004	LN 9016-04K	5000007570	5	pcs
	Washer			
	GERMANY			
0005	LN 9016-05K	5000007312	10	pcs
	Washer			
	GERMANY			
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	Washer			
	GERMANY			
0007	LN 9025-0620K	5000007966	10	pcs
	Washer			
	GERMANY			

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	Screw			
	GERMANY			
0004	LN 9016-04K	5000005121	5	pcs
	Washer			
	GERMANY			
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0012	LN 9338-06 Nut ITALY	5000008043	10	pcs
0013	LN 29679-AM6 Nut ITALY	5000007807	10	pcs

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The manufacturer herewith confirms that production of these standard parts is in accordance with the current regulations and latest standard drawings. The material used was taken from stocks regularly tested by the manufacturer.
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SACS Boysen U.S. Inc.





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	Screw			
	GERMANY			
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	Washer			
	GERMANY			
0004	LN 9016-04K	5000007570	5	pcs
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0005	LN 9016-05K	5000007312	10	pcs
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	GERMANY			

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3050 W. Story Road
Irving, TX 75038
USA

Phone : +1 469 629 0660
Fax : +1 469 606 0921
e-mail: ak@sacs-boysen-us.aero
EIN : 99-0378377

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	Washer			
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	Nut			
	ITALY			
0011	LN 9338-05	5000008222	10	pcs
	Nut			
	ITALY			
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	ITALY			
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	ITALY			

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Hemmerich Steven				Hawkesbury, ON
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	Bolt					
	GERMANY					
0002	LN 9037-05016	5000003528	10	pcs	565.00	56.50
	Bolt					
	GERMANY					
0003	LN 9439-M4X12	5000007110	10	pcs	365.00	36.50
	Screw					
	GERMANY					
0004	LN 9016-04K	5000005121	5	pcs	165.00	8.25
	Washer					
	GERMANY					
0004	LN 9016-04K	5000007570	5	pcs	165.00	8.25
	Washer					
	GERMANY					
0005	LN 9016-05K	5000007312	10	pcs	165.00	16.50
	Washer					
	GERMANY					
0006	LN 9016-06K	5000000434	10	pcs	165.00	16.50
	Washer					
	GERMANY					

-> Page 2

SACS Boysen Aerospace U.S. Inc. 3050 W. Story Road Irving, TX 75038 USA

Apical Industries, Inc.
dba Dart Aerospace
3030 Enterprise Court, Suite A
92081 Vista, CA
U.S.A.



INVOICE
Please state document number for any questions:

Document no.: 3006585
Customer Id: 50236 Account:
Document date: 03/08/2018 Page: 2
jj/jonesj

Your order from 26.02.18	Reference no. PO039111	Contact jj@sacs-boysen-us.aero	Lead time 08.03.18	Delivery address: Dart Aerospace Ltd. 1270 Aberdeen Street Hawkesbury, ON 613-632-5200 /
Purchaser Hemmerich Steven Against your Order and our delivery we charge as follow:				

Pos	Part Number	BatchNo.	Quantity EA	Price per 100	Total US\$
0007	LN 9025-0620K Washer GERMANY	5000007966	10	pcs	175.00
0008	LN 9025-0305K Washer GERMANY	5000000388	10	pcs	175.00
0009	LN 9166-5.3 Washer GERMANY	5000000351	10	pcs	125.00
0010	LN 9338-04 Nut ITALY	5000007228	10	pcs	255.00
0011	LN 9338-05 Nut ITALY	5000008222	10	pcs	275.00
0012	LN 9338-06 Nut ITALY	5000008043	10	pcs	295.00
0013	LN 29679-AM6 Nut ITALY	5000007807	10	pcs	385.00

Delivery Date: 08.03.18 [Delivery Note Number: 0314901]

0007	LN 9025-0620K Washer GERMANY	5000007966	10	pcs	175.00	17.50
0008	LN 9025-0305K Washer GERMANY	5000000388	10	pcs	175.00	17.50
0009	LN 9166-5.3 Washer GERMANY	5000000351	10	pcs	125.00	12.50
0010	LN 9338-04 Nut ITALY	5000007228	10	pcs	255.00	25.50
0011	LN 9338-05 Nut ITALY	5000008222	10	pcs	275.00	27.50
0012	LN 9338-06 Nut ITALY	5000008043	10	pcs	295.00	29.50
0013	LN 29679-AM6 Nut ITALY	5000007807	10	pcs	385.00	38.50

-> Page 3

SACS Boysen Aerospace U.S. Inc. 3050 W. Story Road Irving, TX 75038 USA



Apical Industries, Inc.
dba Dart Aerospace
3030 Enterprise Court, Suite A
92081 Vista, CA
U.S.A.

INVOICE

Please state document number for any questions:

Document no.: 3006585
Customer Id: 50236 Account:
Document date: 03/08/2018 Page: 3
jj/jonesj

Your order from 26.02.18	Reference no. P0039111	Contact jj@sacs-boysen-us.aero	Lead time 08.03.18	Delivery address: Dart Aerospace Ltd. 1270 Aberdeen Street Hawkesbury, ON 613-632-5200 /
Purchaser Hemmerich Steven Against your Order and our delivery we charge as follow:		Dispatch type		

Pos Part Number BatchNo. Quantity EA Price per 100 Total US\$

Delivery Date: 08.03.18 [Delivery Note Number: 0314901]

Please remit payment to:

Frost Bank
ABA 114000093 ACCT 820032921
SACS Boysen Aerospace U.S. Inc.
SWIFT Code FRSTUS44

30 Tage rein Netto
30 Days net

Total US\$ 363.50

Your VAT No:

SACS Boysen Aerospace U.S. Inc.
3050 W. Story Road
Irving, TX 75038
USA

Phone : +1 469 629 0660
Fax : +1 469 606 0921
e-mail: ak@sacs-boysen-us.aero
EIN : 99-0378377



* L B 5 1 3 2 0 1 *

20170719-090851/msc

Boysen

AEROSPACE
CONNECTING PARTS

Boysen GmbH & Co. KG · Stahlgruberring 49 · 81829 München · Germany

SACS Boysen Aerospace U. S. Inc.
Jo Ann HALL
3050 W. Story Road
Irving , TX 75038
US

DELIVERY NOTE

Please state document number for any questions:

Document no.: B513201
Customer Id: 04000 Account: 12760
Document date: 19.07.2017 Page: 1

Your Contact:

Susanne ANATER
Phone: +49 (89) 427421-22
eMail: sa@boysen.aero

Your order from	Reference no.	Dispatch type	
17.07.17	0002040	DDP (delivered duty paid)	
Contact		DHL	
HALL Jo Ann			
Thank you for your order. We confirm according to our sales requirements which are to be found under www.boysen.aero as follow:			
Pos. Part Number	Lot No.	Quantity	EA

0001	LN 9037-05012 Please correct the price. You had a decimal point fault + corrected price. SCREW MF LOT: 85151800014	0008142476	500 Pcs. 5-0-0-0-0-7-2-7-8-1-
0007	LN 9025-0815L WASHER	0008107296	700 Pcs.

Certificate of Conformity (NFL00-015C / EN10204-2.1):

We certify, unless otherwise stated, that the whole of supplies have been inspected and conform
to the applicable order specifications (e.g. specification(s), drawing(s), data sheet(s) etc.).

Boysen GmbH & Co. KG, Munich


Markus Cebulla
Quality Manager

20. Juli 2017 ZR1

SACS GmbH · Robert-Bosch-Straße 15 · 72186 EMPFINGEN · GERMANY

 Boysen GmbH & Co. KG (MUC)
 Incoming goods department
 Stahlgruberring 49
 81829 München
 DEUTSCHLAND

 Correspondent: Alexandra Däublé
 Phone: +49 (7485) 977-22-363
 Fax: +49 (7485) 977-22-409
 Email: ad@sacs.aero
 Page 1 of 1

Date: 07.01.2016

Delivery Note No.: 13041136 08142476



1 3 0 4 1 1 3 6

 We supply the following items in accordance with our terms of sale available at <http://www.sacs.aero> and with our terms of delivery and payment as mentioned on our order confirmation.

 Your order no.: 0027445 / 22.05.2015
 Our order confirmation no.: 11017487 / 24.06.2015
 Supplier code: 02122
 vorläufige AB Customer code: 90000004

Pos.	Item no./ Description / Drawing no. / Index / Date / Details	Ordered Quantity / Balance	Delivered Quantity	Balance	Unit
1	LN 9037-05012 X LN 9037-05012 hexagon screw with small head LN 9037-05012 / 01.12.1981 Inspection Certificate according to DIN EN 10204-3.1 required 722730224 LN 9037-05012 hexagon screw with small head LN9037 X Lot no.: 85151800014 X Material no.:	25.000	27.530	-2.530	piece
			27.481		

5 0 0 0 0 0 7 2 7 8 - -

Manufacturer Certification of Conformity

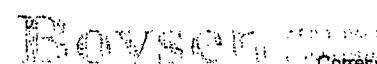
We certify that all articles listed above conform in all respects except for any restrictions mentioned above to the applicable order specifications.


 Steffen Grünert
 Quality Manager

SACS GmbH

 Robert-Bosch-Straße 15 · 72186 EMPFINGEN · GERMANY
 Phone: +49 7485 97722-100 · Fax: +49 7485 97722-109
 Register of Companies: Stuttgart · HRB 470564 · VAT no. DE220578341
 Managing Director: Achim Mayenberger · Oliver Dräger

Boysen GmbH & Co. KG
Receiving Inspection
Stahlgrübering 49
81829 München
GERMANY



Correspondent:

Nazli Sinem Kizgin

Phone:

+49 7485 97722-753

Email:

nsk@sacs.aero

0 8 1 4 2 4 7 5

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Page 1 of 1

Inspection Certificate 3.1 per DIN EN 10204 for screws and bolts

Certificate no.:	16 000	Date:	07.01.2015
Order no.:	0027445	Material:	1.7224
Delivery note no.:	13041136	Material supplier:	FR. u. H. Lüling GmbH & Co.KG
Customer part no.:	LN 9037-05012	Lot no. (Supplier):	22815
Description:	Screws, hexagon head with reduced head and shark tolerances h11	Polish-no.:	2217a15 & 2217b15
SACS-part / Div. no.:	722730224 / LN9037	Lot no.:	85151800014
Issue:		Quantity:	27.530 pcs.
Production and Quality test according to specification:	LN 65 010 (03/1968)		

Shear force (kN) min:		Fracture load (kN) min:	Fatigue strength No. of cycles	Fracture size	Fatigue life (cycles)										
		12,6			Test strength (kN):										
		14,5			F_{01}										
		15,0			F_{02}										
		14,7			Cycles required:										
		15,2			min:										
Double shear force (kN) min:		Angular tensile test (kN) min:			middle:										
		Angle:			End (max):										
					Cycles measured:										
					min:										
					middle:										
					End (max):										
Mechanical properties:															
Re/Rp _{0,2} :	885,3	to 936,4	MPa	Hardness:											
Rm:	1024,5	to 1070,4	MPa	HB required:	measured:										
Rc:	to	MPa		HRC required:	measured:										
				HV required:	measured: 314-324										
Fracture site: A=transition thread/shaft		T=thread	K=transition head/shaft	S=shaft	NF=no fracture										
Chemical analysis in % (material supplier analysis)															
C	Si	Mn	S	P	Al	Co	Cr	Fe	Mo	Ni	N	Cu	B	Ti	V
0,350	0,23	0,66	0,010	0,015	0,039		1,00		0,170	0,13		0,11			
Surface protection: LN9365-3000						Required thickness:	5-9µm	Measured:	7,22µm						
Surface decarburization: to _{max} =						to=									
Time fatigue test: a) with notched bar test (LN9047)						b) at finished product									

We confirm that all of the above named delivery has been tested and that the requirements of the above mentioned specifications and of this particular order have been complied with in every respect (unless specifically stated).

Remarks: Duplicate of APZ-2015-164



Best regards

SACS GmbH

Nazli Sinem Kizgin
Quality Inspector

SACS GmbH

Robert-Bosch-Straße 15 · 72186 EMPFINGEN · GERMANY
Phone: +49 7485 97722-100 · Fax: +49 7485 97722-109





* L 9 3 5 0 7 0 1 *

Boysen

AEROSPACE
CONNECTING PARTS

Boysen GmbH & Co. KG · Stahlgruberring 49 · 81629 München · Germany

SACS Boysen Aerospace U. S. Inc.
Suite D-300
Andreas KIRSCHNER
1930 W. Airfield Drive
Dallas, TX 75261
US

DELIVERY NOTE

Please state document number for any questions:

Document no.: 9350701
Customer Id: 04000 Account: 12760
Document date: 25.02.2015 Page: 1

Your Contact:

Ernel Demirovic
Phone: +49 (89) 42742112
eMail: ed@boysen.aero

Your order from	Reference no.	Lead time	
	0000690		
Purchaser		Dispatch type	
KIRSCHNER Andreas			
Thank you for your order. We confirm according to our sales requirements which are to be found under www.boysen.aero as follow:			
Pos. Part Number	Lot No.	Quantity	EA
0001 NSA 5023-3-11	0008123163	200	Pcs. ✓
0002 LN 29672-AM4	0008127337	150	Pcs. ✓
0003 EN 2122-05010A	SME1409	1400	Pcs. ✓
0004 JN 0099-100	SAS1000	50	Pcs. ✓
0005 DIN 65258-A25100E	0008100349	500	Pcs. ✓
0006 ASNA 0045-060BCL Your PartNo: ASNA 0045-BC080L	0008127296	1086	Pcs. ✓
0007 CCR 264-CS3-3	0008105598	5000	Pcs. ✓
0008 DIN 70951-39	0008126319	148	Pcs. ✓
0009 LN 9028-A10	0008132957	617	Pcs. ✓
0010 LN 9338-04	0008128772	5000	Pcs. ✓
0011 LN 9438-M6X44	0008101394	500	Pcs. ✓
0013 LN 9439-AM4X22	0008101050	500	Pcs. ✓
0014 LN 9037-05016	0008133231	500	Pcs. ✓

Certificate of conformity:

We certify that all articles listed above conform in all respects except for any
restrictions mentioned to the applicable order specifications.

Boysen AEROSPACE CONNECTING PARTS

08133231

SACS GmbH • Stuttgart-Str. 58 • 78628 ROTTWEIL • GERMANY

Boysen GmbH & Co. KG (MUC)
Incoming goods department
Stahlgruberring 49
81829 München
DEUTSCHLAND

Correspondent : Karin Marschall
Phone: +49 (7428) 93912-230
Fax: +49 (7428) 93912-229
E-mail: km@sacs.aero

Page 1 of 3

APPROVED

Date: 22.07.2014

Delivery Note No.: 13031784



We supply the following items in accordance with our terms of sale available at <http://www.sacs.aero> and with our terms of delivery and payment as mentioned on our order confirmation.

Your order no.: 0022603 / 23.07.2013
Our order confirmation no.: 11012884 / 22.10.2013
vorläufige AB

Supplier code: 02122
Customer code: 90000004

Pos.	Item no./ Description / Drawing no. / Index / Date / Details	Ordered Quantity / Balance	Delivered Quantity	Balance	Unit
1	LN9037-05016 LN9037-05016 Sechskantschraube mit kleinem Kopf LN9037-05016 / 01.12.1981 Inspection Certificate according to DIN EN 10204-3.1 required 722730225 LN9037-05016 Sechskantschraube mit kleinem Kopf LN9037 * Lot no.: 85132890763 xx Material no.: 051704	25.000	29.561 28.000	-4.561	piece
2	LN9037-05018 LN9037-05018 Sechskantschraube mit kleinem Kopf LN9037-05018 / 01.12.1981 Inspection Certificate according to DIN EN 10204-3.1 required 722730229 LN9037-05018 Sechskantschraube mit kleinem Kopf LN9037 * Lot no.: 85132890764 Material no.: 051704	25.000	27.750	-2.750	piece

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Delivery Note No.: 13031784

Page 2 of 3

Pos.	Item no./ Description / Drawing no. / Index / Date / Details	Ordered Quantity / Balance	Delivered Quantity	Balance	Unit
3	LN9037-05020 LN9037-05020 Sechskantschraube mit kleinem Kopf LN9037-05020 / 01.12.1981 Inspection Certificate according to DIN EN 10204-3.1 required 722730230 LN9037-05020 Sechskantschraube mit kleinem Kopf LN9037 * Lot no.: 85132890765 Material no.: 051704	25.000	28.620	-3.620	piece
4	LN9037-05024 LN9037-05024 Sechskantschraube mit kleinem Kopf LN9037-05024 / 01.12.1981 Inspection Certificate according to DIN EN 10204-3.1 required 722730232 LN9037-05024 Sechskantschraube mit kleinem Kopf LN9037 * Lot no.: 85132890767 Material no.: 051704	25.000	30.232	-5.232	piece
5	LN9037-05028 LN9037-05028 Sechskantschraube mit kleinem Kopf LN9037-05028 / 01.12.1981 Inspection Certificate according to DIN EN 10204-3.1 required 722730233 LN9037-05028 Sechskantschraube mit kleinem Kopf LN9037 * Lot no.: 85132890768 Material no.: 051704	25.000	28.618	-3.618	piece
6	LN9037-05032 LN9037-05032 Sechskantschraube mit kleinem Kopf LN9037-05032 / 01.12.1981 Inspection Certificate according to DIN EN 10204-3.1 required 722730235 LN9037-05032 Sechskantschraube mit kleinem Kopf LN9037 * Lot no.: 85132890770 Material no.: 051704	25.000	27.532	-2.532	piece
7	LN9037-05034 LN9037-05034 Sechskantschraube mit kleinem Kopf LN9037-05034 / 01.12.1981 Inspection Certificate according to DIN EN 10204-3.1 required 722730236 LN9037-05034 Sechskantschraube mit kleinem Kopf LN9037 * Lot no.: 85132890771 Material no.: 051704	25.000	29.213	-4.213	piece

5000003528

08133234

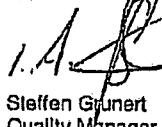
Delivery Note No.: 13031784

Page 3 of 3

Pos.	Item no./ Description / Drawing no. / Index / Date / Details	Ordered Quantity / Balance	Delivered Quantity	Balance	Unit
8	LN9037-06035 LN9037-06035 Sechskantschraube mit kleinem Kopf LN9037-06035 / 01.12.1981 Inspection Certificate according to DIN EN 10204-3.1 required 722730246 LN9037-06035 Sechskantschraube mit kleinem Kopf LN9037 * Lot no.: 85132890825 Material no.: 051704	25.000	24.960	40	piece
9	LN9037-06060 LN9037-06060 Sechskantschraube mit kleinem Kopf LN9037-06060 / 01.12.1981 Inspection Certificate according to DIN EN 10204-3.1 required 722730253 LN9037-06060 Sechskantschraube mit kleinem Kopf LN9037 * Lot no.: 85132890832 Material no.: 051704	25.000	24.950	50	piece

Manufacturer Certification of Conformity

We certify that the articles listed above conform in all respects except for any restrictions mentioned above to the applicable order specifications.



Steffen Grunert
Quality Manager

5000003528

08133234

SACS GmbH · Stuttgarter Strasse 50 · 78628 ROTTWEIL · GERMANY

Boysen GmbH & Co. KG
Receiving Inspection
Stahlgruberring 49
81829 MÜNCHEN
GERMANY

Correspondent: Sascha Helme
Fon: +49 (741) 942002-223
E-mail: sh@sacs.aero

Page 1 of 1

Inspection Certificate 3.1 per DIN EN 10204 for screws and bolts

Certificate no.:	14 414	Date:	24.07.2014
Order no.:	0022603	Material:	1.7224
Delivery note no.:	13031784	Material supplier:	Fritz Fingemagel Drahtwerke GmbH & Co.KG
Customer-part no.:	LN9037-05016	Lot no. (supplier):	051704
Description:	Screws, hexagon head with reduced head and shank tolerances h11	Polish-no.:	1146a14 & 1146b14
SACS-part / Drw. no.:	722730255 / LN9037	Lot no.:	85132890763
Issue:	Dec. / 1981	Quantity:	29.561 pcs.
Production and Quality test according to specification: LN 66010			

Shear force (kN) min:		Fracture load (kN) min: 12,6	Fracture size	Fatigue life (cycles)											
		15,2		Test strength (kN):											
		14,8		F_{0s}											
		14,7		F_{Uo}											
		15,2													
Double shear force (kN) min:		Angular tensile test (kN) min:		Cycles required:											
		Angle:		min: middle: End (max):											
				Cycles measured: min: middle: End (max):											
Mechanical properties:															
Re/Rp _{0,2} :	930,6	to 971,2	MPa	Hardness: HB required:											
Rm:	1033,6	to 1073,7	MPa	measured: measured:											
Rc:		to	MPa	HRC required: HV required: measured: 300-311											
Fracture site: A=transition thread/shaft		T=thread	K=transition head/shaft	S=shaft											
NF=no fracture															
Chemical analysis in % (material supplier analysis)															
C	Si	Mn	S	P	Al	Co	Cr	Fe	Mo	Ni	N	Cu	B	Ti	V
0.350	0.17	0.76	0.009	0.019	0.026		0.98	.	0.160	0.03	0.003	0.02			
Surface protection: LN9368-3000.2					Required thickness: 5-9µm				Measured: 6,68µm						
Surface decarburization: t_{max} =					to=										
Time fatigue test: a) with notched bar test (LN9047)					b) at finished product										

We confirm that all of the above named delivery has been tested and that the requirements of the above mentioned specifications and of this particular order have been complied with in every respect (unless specifically stated).

Remarks: Duplicate of APZ-2014-077

Best regards

SACS GmbH
Sascha Helme
Quality Inspector

SACS GmbH
Stuttgarter Strasse 58
78620 ROTTWEIL
GERMANY

Fon +49 (7 41) 94 20 02 - 200

Fax +49 (7 41) 94 20 02 - 200

www.sacs.aero

Register of Companies:

Stuttgart

HRB 470984

Managing Director:

Oliver Dräflus

Achim Mayenberger

Member of **SACS Boysen**
www.sacs.aero

5100003528



L8391701

Boysen

AEROSPACE
CONNECTING PARTS

Boysen GmbH & Co. KG · Stahlgruberring 49 · 81829 München · Germany

SACS Boysen Aerospace U. S. Inc.
Suite D-300
Jo Ann HALL
1930 W. Airfield Drive
Dallas, TX 75261
US

DELIVERY NOTE

Please state document number for any questions:

Document no.: **B391701**
Customer Id: **04000** Account: **12760**
Document date: **31.05.2017** Page: **1**

Your Contact:

Beate BESENFELDER
Phone: +49 (89) 427421-32
eMail: bb@boysen.aero

Your order from 26.05.17	Reference no. 0001984	Dispatch type DDP (delivered duty paid)	
Contact HALL, Jo Ann Thank you for your order. We confirm according to our sales requirements which are to be found under www.boysen.aero as follow:			
Pos. Part Number	Lot No.	Quantity	EA
0001 LN 9439-AM4X10 SCREW MF LOT: 85160540435	0008147187	750	Pcs.
0002 LN 9025-0410K WASHER	0008136276	1.500	Pcs.
0003 <u>LN 9439-M4X12</u> SCREW MF LOT: 85162600079	<u>0008149285</u>	2.500	Pcs. <u>5.0-0.0-0-0-7-1.1-0-0</u>
0004 EN 2367-18020 SPLIT PIN MF LOT: 85153440195	0008143746	3.000	Pcs.
0005 LN 94-30025 SPLIT PIN MF LOT: 85153440173	0008142905	400	Pcs.
0006 LN 9016-12K WASHER MF LOT: 85153500245	0008148693	600	Pcs.

Certificate of Conformity (NFL00-015C / EN10204-2.1):

We certify, unless otherwise stated, that the whole of supplies have been inspected and conform
to the applicable order specifications (e.g. specification(s), drawing(s), data sheet(s) etc.).

Boysen GmbH & Co. KG, Munich

Boysen

AEROSPACE
CONNECTING PARTS

Boysen GmbH & Co. KG · Stahlgruberring 49 · 81829 München · Germany

SACS Boysen Aerospace U. S. Inc.
Suite D-300
Jo Ann HALL
1930 W. Airfield Drive
Dallas, TX 75261
US

DELIVERY NOTE

Please state document number for any questions:

Document no.: B391701
Customer Id: 04000 Account: 12760
Document date: 31.05.2017 Page: 2

Your Contact:

Beate BESENFELDER
Phone: +49 (89) 427421-32
eMail: bb@boysen.aero

Your order from 26.05.17	Reference no. 0001984	Dispatch type DDP (delivered duty paid) DHL	
Contact: HALL Jo Ann Thank you for your order. We confirm according to our sales which are to be found under www.boysen.aero as follow:		requirements	
Pos. Part Number 11111	Lot No.	Quantity	EA

Markus Cebulla
Quality Manager

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08149285

SACS GmbH · Robert-Bosch-Straße 15 · 72186 EMPFINGEN · GERMANY

Boysen GmbH & Co. KG (MUC)
 Incoming goods department
 Stahlgruberring 49
 81829 München
 DEUTSCHLAND

Correspondent: Karin Marschall
 Phone: +49 (7485) 977-22-130
 Fax: +49 (7485) 977-22-409
 Email: km@sacs.aero
 Page 1 of 1

Date: 22.11.2016

Delivery Note No.: 13046963



1 3 0 4 6 9 6 3

We supply the following items in accordance with our terms of sale available at <http://www.sacs.aero> and with our terms of delivery and payment as mentioned on our order confirmation.

Your order no.: 0029442 / 13.01.2016
 Our order confirmation no.: 11019574 / 17.02.2016
 Pos. 1 sehr dringend - gleich ausliefern sobald Lagerbestand!

Supplier code: 02122
 Customer code: 90000004

Pos.	Item no./ Description / Drawing no. / Index / Date / Details	Ordered Quantity / Balance	Delivered Quantity	Balance	Unit
1	LN9439-M4x12 ✕ LN9439-M4x12 button-head screw with crossrecess LN9439-M4x12 / 01.12.1994 Inspection Certificate according to DIN EN 10204-3.1 required 722731818 LN9439-M4x12 button-head screw with crossrecess Lot no.: 85162600079 ✕	102.439	102.645	-206	piece
			102.432		

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Manufacturer Certification of Conformity

We certify that all articles listed above conform in all respects except for any restrictions mentioned above to the applicable order specifications.

Thomas SCHÄTTEL
 Quality Inspector
 Stamp / Signature

Boysen

08149285

SACS GmbH · Robert-Bosch-Straße 15 · 72186 EMPFINGEN · GERMANY

Boysen GmbH & Co.KG (MUC)
Incoming goods department
Stahlgruberring 49
81829 Munich
DEUTSCHLAND

SACS SOLID AEROSPACE
CONNECTING SYSTEMS

Correspondent: Thomas Schättle
Phone: +49 7485 97722-758
Email: tsh@sacs.aero

Page 1 of 1

Inspection Certificate 3.1 per DIN EN 10204 for screws and bolts

Certificate no.:	16986	Date:	21.11.2016
Order no.:	0029442	Material:	1.7224
Delivery note no.:	13046963	Material supplier:	Fritz Finkernagel Drahtwerke GmbH & Co.KG
Customer-part no.:	LN 9439-M4X12	Lot no. (supplier):	051704
Description:	button head,screw with crossrecess	Polish-no.:	1573a16 & 1573b16
SACS-part / Drw. no.:	722731818 / LN9439	Lot no.:	85162600079
Issue:	12.1994	Quantity:	102.645 pcs
Production and Quality test according to specification: DIN 65 149 (12/1980)			

Shear force (kN) min:	Fracture load (kN) min: 8,7 8,7 8,8 8,8 8,6	Fatigue strength No. of cycles	Fracture size	Fatigue life (cycles)											
				Test strength (kN): F_{0r} F_{Ur}											
				Cycles required: min: middle: End (max):											
				Cycles measured: min: middle: End (max):											
Mechanical properties:		Hardness:													
Re/Rp _{0,2} :	815,9 to 857,6 MPa	HB required:		measured:											
Rm:	989,1 to 1008,8 MPa	HRC required:		measured:											
Rc:	to MPa	HV required:		measured: 296 - 303 HV											
Fracture site: A=transition thread/shaft	T=thread	K=transition head/shaft	S=shaft	NF=no fracture											
Chemical analysis in % (material supplier analysis)															
C	Si	Mn	S	P	Al	Co	Cr	Fe	Mo	Ni	N	Cu	B	Ti	V
0,350	0,17	0,76	0,008	0,019	0,026		0,98		0,160	0,03	0,003	0,02			
Surface protection:	LN9368-3000	Required thickness:	5-9µm	Measured:	5,70µm										
Surface decarburization:	$t_{max} =$	$t_0 =$													
Time fatigue test: a) with notched bar test (LN9047)					b) at finished product										

We confirm that all of the above named delivery has been tested and that the requirements of the above mentioned specifications and of this particular order have been complied with in every respect (unless specifically stated).

Remarks: Duplicate of APZ-2016-085

5 0 0 0 0 0 7 1 1 0 - - -

Best regards

SACS GmbH

Thomas Schättle
Quality Inspector

SACS GmbH

Robert-Bosch-Straße 15 · 72186 EMPFINGEN · GERMANY



* L A 0 8 5 8 0 3 *

Boysen

AEROSPACE
CONNECTING PARTS

Boysen GmbH & Co. KG · Stahlgruberring 49 · 81829 München · Germany

SACS Boysen Aerospace U. S. Inc.
Suite D-300
Jo Ann HALL
1930 W. Airfield Drive
Dallas, TX 75261
US

DELIVERY NOTE

Please state document number for any questions:

Document no.: A085803
Customer Id: 04000 Account: 12760
Document date: 17.02.2016 Page: 1

Your Contact:

Ernel DEMIROVIC
Phone: +49 (89) 42742112
eMail: ed@boysen.aero



APPROVED

Your order from	Reference no.	Dispatch type	
21.12.15	0001116	EXW (ex works)	
Purchaser	18.12.15	DHL 968436185	
HALL Jo Ann			
Thank you for your order. We confirm according to our sales requirements which are to be found under www.boysen.aero as follow:			
Pos. Part Number	Lot No.	Quantity	EA

0002 LN 9016-04K 0008138946 1.477 Pcs.

2,000 Pcs 15.01.2016

4,000 Pcs 17.02.2016

WASHER

MF LOT: 85142370252

0002 LN 9016-04K 0008143169 2.523 Pcs.

2,000 Pcs 15.01.2016

4,000 Pcs 17.02.2016

WASHER

MF LOT: 85152580378

15-0100-0512-17

Certificate of conformity:

We certify that all articles listed above conform in all respects except for any restrictions mentioned to the applicable order specifications.

Except for commercial parts DIN up to 4 digits and all ISO parts.

Boysen GmbH & Co. KG, Munich

Pierre Heidepriem
Quality Manager

18 Feb. 2016 ZB2

Boysen AEROSPACE
CONNECTING PARTS

08138946

APPROVED

SACS GmbH · Stuttgarter Str. 58 · 78628 ROTTWEIL · GERMANY

Boysen GmbH & Co. KG (MUC)
Incoming goods department
Stahlgruberring 49
81829 München
DEUTSCHLAND

Correspondent: Madeleine Heinzelmann
Phone: +49 (7428) 93912-221
Fax: +49 (7428) 93912-225
E-mail: mhe@sacs.aero

Page 1 of 1

Date: 12.06.2015

Delivery Note No.: 13037382



1 3 0 3 7 3 0 2

We supply the following items in accordance with our terms of sale available at <http://www.sacs.aero> and with our terms of delivery and payment as mentioned on our order confirmation.

Your order no.: 0026866 / 18.03.2015
Our order confirmation no.: 11016762 / 23.03.2015

Supplier code: 02122
Customer code: 90000004

Pos.	Item no./ Description / Drawing no. / Index / Date / Details	Ordered Quantity / Balance	Delivered Quantity	Balance	Unit
✓ 1	LN9016-04K <input checked="" type="checkbox"/> Scheibe LN9016 / 01.04.1980 Abnahmeprüfzeugnis nach DIN EN 10204-3.1 beifügen. 722724370 Scheibe 04 SACS24034 A Lot no.: 85142370252 <input checked="" type="checkbox"/> Material no.:	19.306	19.273	33	piece
			✓ 19.286		

Manufacturer Certification of Conformity

We certify that all articles listed above conform in all respects except for any restrictions mentioned above to the applicable order specifications.

Steffen Gruhert
Quality Manager

08138946

SACS GmbH · Stuttgarter Strasse 58 · 78628 ROTTWEIL · GERMANY

Boysen GmbH & Co. KG
Receiving Inspection
Stahlgruberring 49
81829 München
GERMANY

Correspondent: Nazli Sinem Kizgin
Fon: +49 (741) 942002-221
E-mail: nsk@sacs.aero

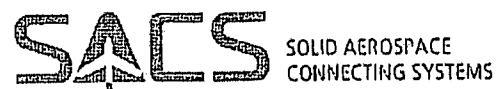
Page 1 of 2

Inspection Certificate 3.1 per DIN EN 10204

Certificate no.:	15 263	Date:	03.06.2015
Order no.:	0026866	Date:	18.03.2015
Delivery note no.:	13037382	Date:	15.06.2015
Customer-part no.:	LN9016-04K	Description:	Washer
SACS-part / Drw. no.:	722724370 / LN9016	Issue:	April 1980
Lot no.:	85142370252	Quantity:	19.249 pcs

121 00005121
45

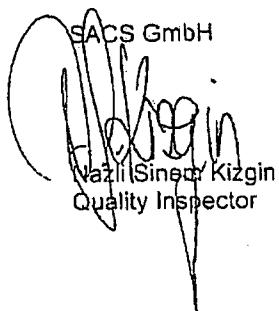
Pos.	Characteristic	Desired value	Actual value
1	Diameter $d_1=4,2$ H13	$4,2 \pm 0,18$	4,22 – 4,33
2	Diameter $d_2=8 -0,4$	8 -0,4	8,68 -8,76
3	Dimension $s=0,5$	$0,5 \pm 0,1$	0,50 – 0,52
4	Dimension $t=0,2 \pm 0,1$	$0,2 \pm 0,1$	0,2 – 0,3
5	Head treatment of material SAE4130 to hardness 207-268 HV acc. WL1.7214.4	207-268 HV	240 HV
6	Surface treatment: cadmium plates per LN9368-3000.3	LN9368-3000.3	accept
7	Material: steel WL1.7734.4, WL1.7220.7 or WL1.7214.4	WL1.7734.4, WL1.7220.7 or WL1.7214.4	see attachment Lot: 2131578K (85130160110)

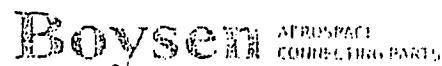


Page 2 of 2

We certify that the article listed above conform in all respects except for any restrictions mentioned above to the applicable order specifications.

Best regards


SACS GmbH
Nazli Sined Kizgin
Quality Inspector


Boysen AEROSPACE CONNECTING PARTS

08138946

5000005121



SAMUEL SON & CO. INC. MIDWEST DIV
20001 SHERWOOD AVENUE
DETROIT, MI
48234
(313) 893-5000 FAX (313) 893-8422

Sold to: FACTORY STEEL & METAL SUPPLY CO.
14020 OAKLAND AVE.

DETROIT
MI 48203

Ship to: FACTORY STEEL & METAL SUPPLY CO.
14020 OAKLAND AVE.

DETROIT
MI 48203

CERTIFICATE OF TEST

Date: 7/10/09 Customer Order No. 032509HC1 Our Order No. 001638

MATERIAL

Item DescriptionVendor & Heat Numbers.....

1 CR 4130 AQ CONDITION A DUL 2131578

.0200" X 36" X 72"

Customer part #: 4130.020X36X144.COND.A

2 CR 4130 AQ CONDITION A DUL 2131578

.0200" X 36" X 144

Customer part #: 4130.020X36X144.COND.A

CHEMICAL ANALYSIS

Ven/Heat	DUL	2131578	C	.3100	Mn	.4500	P	.0070	S	.0030	S1	.1900	Cu	.0200
Ni			.0300		Cr	.9500	Mo	.1600	A1	.0450	V	.0030	Ti	.0030
Co			.0010											

MECHANICAL PROPERTIES

Yield	Tensile	Elong.	Red. area	Grain size	Special tests
Ven/Heat	DUL	2131578	K	R8	

53.60 71.40 K 24.00 11 R8.0 BEND TEST OK

Spheroidization x 100

Decarb NO

Special Comments: CONFORMS TO ASTM A505-00, A506-05, AHS 6350IC, AHS 6351G
AHS 18729, AHS 2301 PER ASTM E18 HEAT TREAT RC 34
SURF HRA 61 SUBSURF HRA 67
COUNTRY OF ORIGIN: USA



CH 85130160110

5000005121

BOYSCHEM AEROSPACE
CONNECTING PARTS

08138946



★ L B 6 5 6 3 0 1 ★

Boysen

AEROSPACE
CONNECTING PARTS

Boysen GmbH & Co. KG · Stahlgruberring 49 · 81829 München · Germany

SACS Boysen Aerospace U.S. Inc.
Jo Ann HALL
3050 W. Story Road
IRVING, TX 75038
US

DELIVERY NOTE

Please state document number for any questions:

Document no.: **B656301**
Customer Id: **04000** Account: **12760**
Document date: **20.09.2017** Page: **1**

Your Contact:
Beate BESENFELDER
Phone: +49 (89) 427421-32
eMail: **bb@boysen.aero**

Your order from 12.09.17 Contact HALL Jo Ann Thank you for your order. We confirm according to our sales requirements which are to be found under www.boysen.aero as follow:	Reference no. 0002138	Incoterms DDP (delivered duty paid) DHL	
Pos. Part Number	Lot No.	Quantity	EA

0001 LN 9016-04K WASHERS, BEVELLED MF LOT: 85142370252	0008138946	18 Pcs.
0001 LN 9016-04K WASHERS, BEVELLED MF LOT: 85152580378	0008147288	1.982 Pcs.
0002 EN 3740-060019F SCREW MF LOT: 305095P001F001	0008142260	100 Pcs.

Certificate of Conformity (NFL00-015C / EN10204-2.1):

We certify, unless otherwise stated, that the whole of supplies have been inspected and conform
to the applicable order specifications (e.g. specification(s), drawing(s), data sheet(s) etc.).

Boysen GmbH & Co. KG, Munich

Markus Cebulla
Quality Manager

08147288

SACS GmbH Robert-Bosch-Straße 15 72186 EMPFINGEN GERMANY

Boysen GmbH & Co. KG (MUC)
Incoming goods department
Stahlgruberring 49
81829 München
DEUTSCHLAND

Correspondent: Madeleine Heinzelmann
Phone: +49 (7485) 977-22-443
Fax: +49 (7485) 977-22-409
Email: mhe@sacs.aero
Page 1 of 1

Date: 26.07.2016

Delivery Note No.: 13044832

We supply the following items in accordance with our terms of sale available at <http://www.sacs.aero> and with our terms of delivery and payment as mentioned on our order confirmation.

Your order no.: 0030833 / 20.06.2016
Our order confirmation no.: 11020643 / 21.06.2016
Reklamation BM-L015-2016

Supplier code: 02122
Customer code: 90000004

Pos.	Item no./ Description / Drawing no. / Index / Date / Details	Ordered Quantity / Balance	Delivered Quantity	Balance	Unit
1	LN9016-04K Scheibe LN9016 / 01 04 1980 Abnahmeprüfzeugnis nach DIN EN 10204-3.1 befügen. 722724370 Scheibe 04 SACS24034 A Lot no.: 85152580378	19.680	19.680	0	piece

Manufacturer Certification of Conformity

We certify that all articles listed above conform in all respects except for any restrictions mentioned above to the applicable order specifications.

Steffen Grunert
Quality Manager

5000007570

Boysen

08147286

SACS GmbH · Roben-Bosch-Straße 15 · 72186 EMPFINGEN · GERMANY

Boysen GmbH & Co. KG
Receiving Inspection
Stahlgruberring 49
81829 Munich
GERMANY

SACS SOLID AEROSPACE
CONNECTING SYSTEMS

Correspondent: Thomas Hertkorn
Fon: +49 748597722-759
E-mail: the@sacs.aero

Page 1 of 1

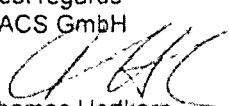
Inspection Certificate 3.1 per DIN EN 10204

Certificate no.:	16 718	Date:	25.07.2016
Order no.:	0030833	Date:	20.06.2016
Delivery note no.:	13044832	Date:	26.07.2016
Customer-part no.:	LN9016-04K	Description:	Washer
SACS-part / Drw. no.:	722724370 / LN9016	Issue:	April 1980
Lot no.:	85152580378	Quantity:	19.680 pcs.

Pos.	Characteristic	Desired value	Actual value
1	Diameter $d_1=4,2$ H13	$4,2 +0,18$	4,22 – 4,31
2	Diameter $d_2=8 -0,4$	8 -0,4	7,81 -7,87
3	Dimension $s=0,5$	$0,5 \pm 0,05$	0,52 – 0,54
4	Dimension $t=0,2 +0,1$	$0,2 +0,1$	0,28
5	Head treatment of material SAE4130 to hardness 207-268 HV acc. WL1.7214.4	207-268 HV	255-262 HV
6	Surface treatment: cadmium plates per LN9368-3000.3	LN9368-3000.3	Accept
7	Material: steel WL1.7734.4, WL1.7220.7 or WL1.7214.4	WL1.7734.4, WL1.7220.7 or WL1.7214.4	See attachment Lot: 2131578 (85130160110)

We certify that the article listed above conform in all respects except for any restrictions mentioned above to the applicable order specifications.

Best regards
SACS GmbH


Thomas Hertkorn
Quality Inspector

5 0 0 0 0 0 7 5 7 0

SACS GmbH

Roben-Bosch-Straße 15 · 72186 EMPFINGEN · GERMANY
Phone: +49 7485 97722-100 · Fax: +49 7485 97722-109

SACS Boysen



SAMUEL SON & CO. INC. MIDWEST DIV
20001 SHERWOOD AVENUE
DETROIT, MI
48234

Sold to: FACTORY STEEL & METAL SUPPLY CO.
14020 OAKLAND AVE.

DETROIT
MI 48203

Ship to: FACTORY STEEL & METAL SUPPLY CO.

14020 OAKLAND AVE.
DETROIT
MI 48203

CERTIFICATE OF TEST

Date: 7/10/09 Customer Order No. 032509MC1 Our Order No. 001638

MATERIAL

Item DescriptionVendor & Heat Numbers.....

1 CR 4130 AQ CONDITION A DUL 2131578
.0200" X 36" X 72"

Customer part #: 4130.020X36X144.COND.A

2 CR 4130 AQ CONDITION A DUL 2131578
.0200" X 36" X 144"

Customer part #: 4130.020X36X144.COND.A

CHEMICAL ANALYSIS

Ven/Heat	DUL	2131578	C	.3100	Mn	.4500	P	.0070	S	.0030	S1	.1900	Cu	.0200	Ni	.0300	Cr	.9500	Mo	.1600	Al	.0450	V	.0030	T1	.0030					

MECHANICAL PROPERTIES

Yield	Tensile	% Elong.	% Red. area	Grain size	Hardness	Special tests
Ven/Heat DUL 2131578	K 53.60	K 71.40	K 24.00	11	RB 81.0	BEND TEST OK
Spheroidization	X		100			
Decarb		NO				

Special Comments: CONFORMS TO ASTM A505-00, A506-05, AMS 6350K, AMS 6351G
AMS 18729, AMS 2301, PER ASTM E18 HEAT TREAT RC 34
SURF HRA 61, SUBSURF HRA 67
COUNTRY OF ORIGIN: USA

SAC3
OM-100
AO-100

CH 85130160110

BOYSEN

08147288

5000001570



* L B 5 2 4 0 0 1 *

Boysen

AEROSPACE
CONNECTING PARTS

Boysen GmbH & Co. KG · Stahlgruberring 49 · 81829 München · Germany

SACS Boysen Aerospace U. S. Inc.
 Andreas KIRSCHNER
 3050 W. Story Road
 Irving, TX 75038
 US

DELIVERY NOTE

Please state document number for any questions:

Document no.: B524001
 Customer Id: 04000 Account: 12760
 Document date: 26.07.2017 Page: 1

Your Contact:

Beate BESENFELDER
 Phone: +49 (89) 427421-32
 eMail: bb@boysen.aero

Your order from	Reference no.	Dispatch type	
21.07.17	0002049	DDP (delivered duty paid)	
Contact		DHL	
KIRSCHNER Andreas			
Thank you for your order. We confirm according to our sales requirements which are to be found under www.boysen.aero as follow:			
Pos. Part Number	Lot No.	Quantity	EA
0001 LN 9037-05014 SCREW MF LOT: 85160540487	0008148978	1.000	Pcs.
0002 LN 9038-04010 SCREW	0008133676	5.000	Pcs.
0003 LN 29910-M4 NUT MF LOT: 79351	0008152917	600	Pcs.
0004 LN 9016-05K WASHER MF LOT: 85170580050	<u>0008151538</u>	10.000	Pcs.
0005 LN 9439-M5X16 SCREW MF LOT: 85160601491	0008149789	3.000	Pcs.

Certificate of Conformity (NFL00-015C / EN10204-2.1):

We certify, unless otherwise stated, that the whole of supplies have been inspected and conform
to the applicable order specifications (e.g. specification(s), drawing(s), data sheet(s) etc.).

Boysen GmbH & Co. KG, Munich


 Markus Cebulla
 Quality Manager

SACS GmbH · Robert-Bosch-Straße 15 · 72186 EMPFINGEN · GERMANY

Boysen GmbH & Co. KG (MUC)
Incoming Goods Department
Stahlgruberring 49
81829 München
DEUTSCHLAND

08154568

Correspondent: Madeleine Heinzelmann
Phone: +49 (7485) 977-22-443
Fax: +49 (7485) 977-22-409
Email: mhe@sacs.aero
Page 1 of 1

Date: 31.03.2017

Delivery Note No.: 13049206



13049206

We supply the following items in accordance with our terms of sale available at <http://www.sacs.aero> and with our terms of delivery and payment as mentioned on our order confirmation.

Your order no.: BM-L008-2017 / 0032606 / 21.02.2017
Our order confirmation no.: 11022601 / 22.02.2017
Reklamation - Oberflächenfehler!

Supplier code: 02122
Customer code: 90000004

Pos.	Item no./ Description / Drawing no. / Index / Date / Details	Ordered Quantity / Balance	Delivered Quantity	Balance	Unit
10	LN9016-05K Scheibe LN9016-05K - / 01.04.1980 Inspection Certificate according to DIN EN 10204-3.1 required 722724372 Scheibe 05 SACS24034 A Lot no.: 85170590050	94.826	94.731 95330	95 500007312	piece

Manufacturer Certification of Conformity

We certify that all articles listed above conform in all respects except for any restrictions mentioned above to the applicable order specifications.

Oliver MARTINI
Quality Inspector

Oliver Martini

Stamp / Signature

Fr. O. V. S. 2017-03-30

08151538

SACS GmbH · Robert-Bosch-Straße 15 · 72186 EMPFINGEN · GERMANY

Boysen GmbH & Co. KG
Incoming Goods Department
Stahlgruberring 49
81829 Munich
GERMANY

SACS SOLID AEROSPACE
CONNECTING SYSTEMS

Correspondent: Oliver Martini
Fon: +49 7485 97722-753
E-mail: om@sacs.aero

Page 1 of 1

Inspection Certificate 3.1 per DIN EN 10204

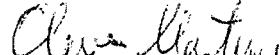
Certificate no.:	17 0232	Date:	30.03.2017
Order no.:	BM-L008-2017	Date:	22.02.2017
Delivery note no.:	13049206	Date:	30.03.2017
Customer-part no.:	LN9016-05K	Description:	Washer
SACS-part / Drw. no.:	722724372 / LN9016	Issue:	April 1980
Lot no.:	85170590050	Quantity:	94.731 pcs

Pos.	Characteristic	Desired value	Actual value
1	Diameter $d_1=5,2$ H13	5,2 +0,22	5,35
2	Diameter $d_2=10$ -0,4	10 -0,4	9,76
3	Dimension $s=1,0$	1,0 ±0,1	1,06
4	Surface treatment: cadmium plates per LN9368-3000.3 Part 1 and Part 5	LN9368-3000.3	accept
5	Material: WL1.7734.4, 1.7220.7 or WL1.7214.4	ASTM A506 ACC. to WL1.7220	5 0 0 0 0 0 7 3 1 7 see attachment Lot: C76756 (85161690163)
6	Tensile strength 690-870 N/mm ²	690-870 N/mm ²	740 N/mm ²

We certify that the article listed above conform in all respects except for any restrictions mentioned above to the applicable order specifications.

Best regards

SACS GmbH



Oliver Martini

Quality Inspector

SACS GmbH

Robert-Bosch-Straße 15 · 72186 EMPFINGEN · GERMANY
Phone: +49 7485 97722-100 · Fax: +49 7485 97722-109

 Boysen

ADMIRAL STEEL L.L.C.
4152 WEST 123RD STREET
ALSIP, IL 60803

08151538

CERTIFICATE OF ANALYSIS

FOR: SOLID AEROSPACE CS GMBH
ROBERT-BOSCH-STRABE 15
72186 EMPFINGEN
GERMANY

ORDER DATE: 05/26/16
YOUR P.O.#: 31043142
OUR ORDER #: 137741
OUR INVOICE #: 0

Qty Shipped

706

Description of Material
ADMIRAL CR SPH ANNEALED 4130 AQ SPRING STEEL
#2F RB 85 MAX .042 X 1.57" COIL

CHEMICAL ANALYSIS

Heat #	C	Mn	P	S	Si	Ni	Cr	Mo	Al	V	Cu
C76756	0.310	0.500	0.010	0.002	0.200	0.040	0.840	0.200			0.090

Heat #	SN	TI	CA	SB	N	CO	B	NB
C76756								

C76756

MECHANICAL PROPERTIES

Heat #	Hardness	Tensile	Yield	Grain Bend	Elongation
C76756	RB 76.9			9	PASS

Heat #	H.T. Hardness	Frequency	Severity	Decarb	Lot	Rev
C76756	RC 31.8				NONE	P14968-00

5000007312

AMS: 6350M ✓

AMS: 6351J

ASTM: A505-12

ASTM: A506-12

ORIGIN: USA

SPOT GA CHECK: .042

QQ-S-:



SACS-Charge
85161690163

SACS
OM-insp.
No. 108

All materials supplied by Admiral Steel are REACH and RoHS compliant.

I certify that the above figures are a true and correct copy of those contained in the records of the company.

Certified by: Terry J. Summers - Vice President

Date: 06/09/16

Eingangsprotokoll FIRMA: Boysen GmbH & Co.KG

Erfassung am 09.05.12 durch /T2

Seite : 1

EINGANGS-LIEFERERSCHEIN Beleg-Nr : 6019018 Datum 09.05.12 Liefer.-Belegnummer :

Adress-Nr.: 02033 Name : SACS GmbH KREDITOR-Kontonummer: 73603 Kostenst. :

Anschrift: Stuttgarter Str.58 78628 ROTTWEIL Tel : 0741-942002-200 Fax : 0741942002290 Kommission : Zeichen :

Pos	Artikelbezeichnung/Text	Charge	Menge NE	EZ-Preis EUR	Gesamt EUR	P	Ges. Netto EUR	Ust%	Ust-Betrag	Brutto EUR	Bestnr	Pos	GegKto
1	LN 9016-06K	0008119018	55660,000 st	10,60	5899,96	2	5899,96	19,00	1120,99	7020,95	0018040-1-00105400		
			0,000 kg		5899,96	EUR	5899,96		1120,99	7020,95			

Wareneingangsprotokoll Boysen GmbH & Co.KG 09.05.12 Eingangsnummer : 6019018 Pos.: 0001 Blatt : 1

Auftraggeber: Boysen GmbH Charge : 0008119018

Qualitätskontrolle

Stahlgruberring 49

81829 München

201205090014

Lieferant/Supplier : SACS GmbH

Liefererschein/Packinglist :

Bestellnummer/Purchase-Nr.: 001804010010

Rohmateriallieferant :

0008119018 SACS

LN 9016-06K

MENGE : 55660

Artikel (: LN 9016-06K) Bezeichnung Losgröße 55660 st

Alternativ : SCHEIBE+ Fehlmenge

Lagerort : 01-03 50000434

Werkstoff 1: 1.7214.4 2: 3: 50000434

Oberfläche 1: LN 9868-3000.3

Oberfläche 2:

Oberfläche 3:

Prüfungen Fertigteile:

Gültiges Normblatt vorhanden : JA

Zertifikat : Ausgabedatum :

**-Number : 05112630033 Arbeitsplan-Nr. :

Prüfungen : 55660

Gewinde : Zertifikat Werkstoff entspr. EN-10204-3,1B : JA

Schaftdurchmesser : Zertifikat Vergüten entspr. EN-10204-2,2 : NEIN

Radien : Zertifikat Oberfläche entspr. EN-10204-2,2 : NEIN

Härteprüfung : Härteprüfung : Arbeitsplan geliefert : NEIN

Sichtprüfung : Arbeitsplan : NEIN

Stichprobennahme gemäß QVA 20-01

Prüfumfang Menge bis : 50000 70/2

Bemerkung	Soll	Toleranz	Ist	
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				

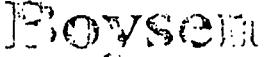
Maßabweichungen : Bemerkungen :

Zertifikate fehlen : :

Einlagerung : JA Bemerkungen :

ruft von : Florian Eidenmüller :

Boysen
QM-Insp.
No. 203


Boysen AEROSPACE
CONNECTING PARTS

08119018

SACS GmbH · Stuttgarter Str. 58 · 78628 ROTTWEIL · GERMANY

50000434

Boysen GmbH & Co. KG (MUC)
 Incoming goods department
 Stahlgruberring 49
 81829 MÜNCHEN
 DEUTSCHLAND

Correspondent : Nicole Gudej
 Phone: +49 (741) 942002-200
 Fax: +49 (741) 942002-290
 E-mail: ng@sacs.aero

Page 1 of 2

Date: 02.05.2012

Delivery Note No.: 13018935

13018935

We supply the following items in accordance with our terms of sale available at <http://www.sacs.aero> and with our terms of delivery and payment as mentioned on our order confirmation.

Your order no.: 0018040 / 08.09.2011
 Our order confirmation no.: 11008220 / 26.09.2011

Supplier code: 02122
 Customer code: 90000004

Pos.	Item no./ Description / Drawing no. / Index / Date / Details	Ordered Quantity / Balance	Delivered Quantity	Balance	Unit
1	LN9016-06K Scheibe LN9016 / 01.04.1980 Abnahmeprüfzeugnis nach DIN EN 10204-3.1 beifügen. 722724373 Scheibe 06 SACS24034 A Lot no.: 85112630033 Material no.:	50.000	55.660	-5.660	piece
2	LN9016-08K Scheibe LN9016 / 01.04.1980 Abnahmeprüfzeugnis nach DIN EN 10204-3.1 beifügen. 722724374 Scheibe 08 SACS24034 A Lot no.: 85112550220 Material no.: 85111160082	25.000	47.602	-22.602	piece

Delivery Note No.: 13018935

Page 2 of 2

Manufacturer Certification of Conformity

We certify that all articles listed above conform in all respects except for any restrictions mentioned above to the applicable order specifications.

Steffen Grunert
Quality Manager

Boysen AEROSPACE
CONNECTING PARTS

08119018 50000434

08119018

SACS GmbH · Stuttgarter Strasse 58 · 78628 ROTTWEIL · GERMANY

Boysen GmbH & Co. KG
Receiving Inspection
Stahlgruberring 49
81829 München
GERMANY

Correspondent: Steffen Grunert
Fon: +49 (741) 942002-220
E-mail: sg@sacs.aero

Page 1 of 2

50000434

Inspection Certificate 3.1 per DIN EN 10204

Certificate no.:	12 227	Date:	04.05.2012
Order no.:	0018040	Date:	08.09.2011
Delivery note no.:	13018935	Date:	02.05.2012
Customer-part no.:	LN9016-06K	Description:	Washer
SACS-part / Drw. no.:	722724373 / LN9016	Issue:	April 1980
Lot no.:	85112630033	Quantity:	55.660 pcs.

Pos.	Characteristic	Desired value	Actual value
1	Diameter $d_1=6,2$ H13	6,2 +0,18	6,20-6,36
2	Diameter $d_2=11$ -0,4	11 -0,4	10,75-11,00
3	Dimension $s=1,5$	1,5 ±0,1	1,45-1,50
4	Dimension $t=0,8$ +0,2	0,8 +0,2	0,85-0,88
5	Surface treatment: cadmium plates per LN9368-3000.3	LN9368-3000.3	accept
6	Material: steel WL1.7734.4, WL1.7220.7 or WL1.7214.4	WL1.7734.4, WL1.7220.7 or WL1.7214.4	see attachment Lot: A25063 (85112630032)

ADMIRAL STEEL L.L.C.
4152 WEST 123RD STREET
ALSIPI, IL 60803

CERTIFICATE OF ANALYSIS

FOR: SOLID AEROSPACE CS GMBH
STUTTGARTER STRASSE 58
78626 ROTTWEIL
GERMANY

ORDER DATE: 08/25/11
YOUR P.O.#: 31016150

OUR INVOICE#: 03032

Qty Shipped

1414

SP 305150 1.7214 Description of Material

ADMIRAL CR 4130 S/A AQ AMS6350 -6351 (AMS 2807A-3.1.1.2) .061" X 1.97" X COIL

CHEMICAL ANALYSIS

Heat #	C	Mn	P	S	Si	Ni	Cr	Mo	Al	V	Cu
A25063	0.300	0.440	0.015	0.001	0.190	0.020	0.850	0.166	0.046	0.006	0.030
Heat #	TI	CA	N	ZR	B						
A25063	0.004	0.002	0.007	0.001	0.000						

MECHANICAL PROPERTIES

Heat #	Hardness	Tensile	Yield	Grain Bend	Elongation
A25063	81.	- 81.		9 - 0 OK	
Heat #	H.T. Hardness	Frequency	Severity	Decarb	Lot
A25063	26			NO	31838

CS: 05112630032
LG: 32022745

ADMIRAL STEEL AEROSPACE
AND CONNECTING PARTS

08119018

50000434

I certify that the above figures are a true and correct copy of those contained in the records of the company.

Certified by: Terry J. Summers - Vice President

Date: 09/07/11

Checkliste Zertifikatsprüfung WE/VT

Boysen AEROSPACE
CONNECTING PARTS

Zertifikatsforderung laut Bestellung	EN 10204-2.1 <input type="checkbox"/> EN 10204-2.2 <input type="checkbox"/> EN 10204-3.1 <input checked="" type="checkbox"/>	Seitenzahl: 2	Charge:
Bestell-Nummer:	18040	Lieferant: SACS	

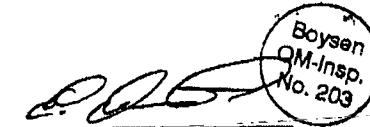
Nr.	Beschreibung der Tätigkeit	erledigt JA	erledigt NEIN	Unterschrift Prüfer
1.	Ermittlung der Bestellanforderung nach EN 10204-3.1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	FG ✓
2.	alle Seiten des Zertifikats vorhanden (z.B. Seite 1 von 4) ?		<input checked="" type="checkbox"/>	FG ✓
3.	Werkstoff laut Norm oder Umschlüsselung vorhanden? Als Austauschwerkstoffe dürfen nur Werkstoffe gemäß Werkstoffleistungsblatt, DIN 29895, Stahlschlüssel und Normen/Technische Reports verwendet werden, sofern diese in der Produktnorm angezogen sind.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	FG ✓
4.	Oberflächenbehandlung bestätigt?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	FG ✓
5.	Chemische Zusammensetzung vorhanden?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	FG ✓
6.	Lot und/oder Nummer der Schmelze des Materials vorhanden? Rohmaterialhersteller angegeben?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	FG ✓
7.	Werte laut Technischer Lieferbedingung vorhanden? Festigkeit, Tensile Strength, Torque usw. TL muss geprüft werden!	<input type="checkbox"/>	<input checked="" type="checkbox"/>	FG ✓
8.	Alle Angaben des Zertifikats sind gut lesbar? Im Zweifel muss ein beim Hersteller / Lieferant ein neues Zertifikat angefordert werden!	<input checked="" type="checkbox"/>	<input type="checkbox"/>	FG ✓
9.	Geprüfte Stückzahl laut Stichprobenanweisung?	50	St.	FG ✓

Bemerkungen:

Boysen AEROSPACE
CONNECTING PARTS

08119018 50000434

Datum: 09.05.12 Name: Eidenmüller
Florian


Boysen
QM-Insp.
No. 203

Unterschrift

2G
★-L-B-9-1-5-7-0-1-★

Boysen AEROSPACE CONNECTING PARTS

Boysen GmbH & Co. KG · Stahlgruberring 49 · 81829 München · Germany

SACS Boysen Aerospace U.S. Inc.
Jo Ann HALL
3050 W. Story Road
IRVING, TX 75038
US

DELIVERY NOTE

Please state document number for any questions:

Document no.: B915701
Customer Id: 04000 Account: 12760
Document date: 19.12.2017 Page: 1

Your Contact:

Beate BESENFELDER
Phone: +49 (89) 427421-32
eMail: bb@boysen.aero

Your order from 15.12.17	Reference No. 0002318	IncoTerms DDP (delivered duty paid) DHL
Contact HALL Jo Ann	Thank you for your order. We confirm according to our sales requirements which are to be found under www.boysen.aero as follow:	

Pos.	Part Number	Lot No.	Quantity	EA	
0001	LN 29952-0405M WASHER Revision level: 01.12.1996	0008123466	600	Pcs.	
0002	EN 2367-18022 SPLIT PIN Revision level: 01.10.1989 MF LOT: 85151760142	0008140220	3.000	Pcs.	
0003	LN 9025-0610K WASHER	0008120020	900	Pcs.	
0004	LN 9025-0620K WASHER	SL81	1.500	Pcs.	500007167
0005	LN 9037-05044 SCREW Revision level: 01.12.1981	0008133060	73	Pcs.	
0006	LN 9037-05044 SCREW MF LOT: 85151390237	0008140397	950	Pcs.	
0007	LN 9037-08018 SCREW Revision level: 01.12.1981 MF LOT: 85151390233	0008139261	1.000	Pcs.	
0008	EN 3536-050 NUT Revision level: 01.10.2007 MF LOT: 62776	0008139575	500	Pcs.	

-> Seite/Page 2

Boysen GmbH & Co. KG · Stahlgruberring 49 · 81829 München · Germany

SACS Boysen Aerospace U.S. Inc.

Jo Ann HALL
3050 W. Story Road
IRVING, TX 75038
US

DELIVERY NOTE

Please state document number for any questions:

Document no.: **B915701**
Customer Id: **04000** Account: **12760**
Document date: **19.12.2017** Page: **2**

Your Contact:

Beate BESENFELDER
Phone: +49 (89) 427421-32
eMail: bb@boysen.aero

Your order from 15.12.17	Reference No. 0002318	Incoterms DDP (delivered duty paid) DHL	
Contact HALL Jo Ann Thank you for your order. We confirm according to our sales requirements which are to be found under www.boysen.aero as follow:			
Pos. Part Number	Lot No.	Quantity	EA

Certificate of Conformity (NFL00-015C / EN10204-2.1):

We certify, unless otherwise stated, that the whole of supplies have been inspected and conform
to the applicable order specifications (e.g. specification(s), drawing(s), data sheet(s) etc.).

Boysen GmbH & Co. KG, Munich

Markus Cebulla
Quality Manager

5 0 0 0 0 0 7 9 6 6

CERTIFICATE ACCORDING EN 10204-3.1

Batch No.: SL81
Our Order No: B9157-01

SACS Boysen Aerospace U.S. Inc.

3050 W. Story Road

Purchase Order No: 0002318 / 18.12.17

Part No: LN 9025-0620K

BAE Approval No. LOA/WAR/21/2001

Material: 1.7214.4

Surface: 50152 Surface:

Surface: FRANZ

Quantity Delivered: 1500 Pcs Job Size: 102565 Pcs

Order No: 1338

Raw Material Supplier: BOEHL

Heat No: 030660

Heat Treatment: WALLN

Hardness Test: Desired Value: 660 N/MM Actual Value: 663 - 693 N/MM

Dimensional Accuracy: inside permissible tolerance range

Chemical Composition in Weight % (Analysis of Material Supplier)

C ! Si ! Mn ! P ! S ! CR ! Mo !
0.280! 0.240! 0.760! 0.011! 0.004! 1.060! 0.220!

Munich, 19.12.2017

Inspector: H.DEISS



Signature Clerk

5000007966

Certificate of Conformity:

We certify that all articles listed above conform in all respects except for any restrictions mentioned to the applicable order specifications.

Boysen GmbH & Co. KG, Munich

CERTIFICATE ACCORDING EN 10204-3.1

Batch No<. SLU578
Our Order No: 77266-01SACS Boysen Aerospace U.S. Inc.
1930 W. Airfield Drive
TX 75261 DFW Airport

50000388

Purchase Order No: ML15012013 / 15.01.13
Part No: LN 9025-0305K
BAE Approval No. LOA/WAR/21/2001
Manufacturer of blanks: K + J. LUEG OHG 58846 HERSCHEID
Material: 1.7214.4
Surface: FRANZ
Quantity Delivered: 2500 Pcs Job Size: 235000 Pcs
Order No: LS V 13.08.99
Raw Material Supplier: ADMIRAL
Molt No: 2111955(SB 55)
Heat Treatment: Josef WALLNER 80454 MUENCHEN

Hardness Test: Desired Value: MIN Actual Value:

Dimensional Accuracy: inside permissible tolerance range

Chemical Composition in Weight % (Analysis of Material Supplier)

C !	Si !	Mn !	P !	S !	CR !	Mo !	Ni !	V !	Ti !	Al !
Cu !	N !									
0.300!	0.220!	0.460!	0.011!	0.003!	0.830!	0.170!	0.020!	0.004!	0.003!	0.042!
0.020!	0.004!									

Munich, 14.03.2013

Inspector: P.CHAPMAN

Committed
to excellence

Signature Boysen

Boysen GmbH Munich herewith confirms that production is in accordance with the current regulations and latest standards. The material used was received and taken from stock regularly tested. Boysen GmbH Munich commits themselves to document all original certificates in the batch. These certificates are

CERTIFICATE ACCORDING EN 10204-3.1

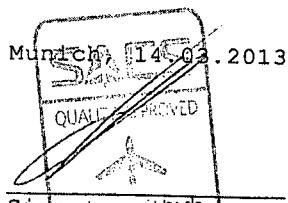
Batch No. SLU578
Our Order No: 77266-01SACS Boysen Aerospace U.S. Inc.
1930 W. Airfield Drive
TX 75261 DFW Airport

50000328

Purchase Order No: ML15012013 / 15.01.13
Part No: LN 9025-0305K
BAE Approval No. LOA/WAR/21/2001
Manufacturer of blanks: K + J. LUEG OHG 58846 HERSCHEID
Material: 1.7214.4
Surface: FRANZ
Quantity Delivered: 2500 Pcs Job Size: 235000 Pcs
Order No: LS V 13.08.99
Raw Material Supplier: ADMIRAL
Molt No: 2111955(SB 55)
Heat Treatment: Josef WALLNER 80454 MUENCHEN
Hardness Test: Desired Value: MIN Actual Value:

Dimensional Accuracy: inside permissible tolerance range

Chemical Composition in Weight % (Analysis of Material Supplier)
C ! Si ! Mn ! P ! S ! CR ! Mo ! Ni ! V ! Ti ! Al !
Cu ! N !
0.300! 0.220! 0.460! 0.011! 0.003! 0.830! 0.170! 0.020! 0.004! 0.003! 0.042!
0.020! 0.004!



Inspector: P.CHAPMAN

Signature: Sales

to excellence

Boysen GmbH Munich herewith confirms that production is in accordance with the current regulations and latest standards. The material used was received and taken from stock regularly tested. Boysen GmbH Munich commits themselves to document all original certificates in the batch. These certificates are

CERTIFICATE ACCORDING EN 10204-3.1

Batch No<. SME1327
Our Order No: 77266-01

SACS Boysen Aerospace U.S. Inc.
1930 W. Airfield Drive
TX 75261 DFW Airport

50000-3517

Purchase Order No: ML15012013 / 15.01.13
Part No: LN 9166-5.3
BAE Approval No: LOA/WAR/21/2001
Manufacturer of blanks: Christian MELSHEIMER GmbH. + Co. KG 55705 IDAR-OBERSTEIN
Material: 3.0255.26
Surface: 724/2006 Surface:
Surface: NEHLS
Quantity Delivered: 1750 Pcs Job Size: 106000 Pcs
Order No: 32554
Raw Material Supplier: THYSSEN SCHULTE
Molt No: 2041811(AB105)

Dimensional Accuracy: inside permissible tolerance range

Chemical Composition in Weight % (Analysis of Material Supplier)

Si !	Mn !	Ti !	Al !	Cu !	Fe !	Mg !	Zn !
0.080!	0.050!	0.020!	99.550!	0.050!	0.300!	0.050!	0.050!

Munich 14.03.2013

Inspector: P.CHAPMAN

Committed
Signature Sales

Boysen GmbH Munich herewith confirms that production is in accordance with the current regulations and latest standards. The material used was received and taken from stock regularly tested. Boysen GmbH Munich commits themselves to document all original certificates in the batch. These certificates are available at Boysen GmbH Munich upon request.

CERTIFICATE ACCORDING EN 10204-3.1

Batch No.: SME1327
Our Order No: 77266-01

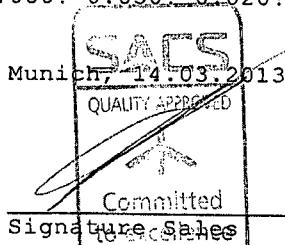
SACS Boysen Aerospace U.S. Inc.
1930 W. Airfield Drive
TX 75261 DFW Airport

500000001

Purchase Order No: ML15012013 / 15.01.13
Part No: LN 9166-5.3
BAE Approval No. LOA/WAR/21/2001
Manufacturer of blanks: Christian MELSHEIMER GmbH.+ Co.KG 55705 IDAR-OBERSTEIN
Material: 3.0255.26
Surface: 724/2006 Surface:
Surface: NEHLS
Quantity Delivered: 1750 Pcs Job Size: 106000 Pcs
Order No: 32554
Raw Material Supplier: THYSSEN SCHULTE
Molt No: 2041811(AB105)

Dimensional Accuracy: inside permissible tolerance range

Chemical Composition in Weight % (Analysis of Material Supplier)
Si ! Mn ! Ti ! Al ! Cu ! Fe ! Mg ! Zn !
0.080! 0.050! 0.020! 99.550! 0.050! 0.300! 0.050! 0.050!



Inspector: P.CHAPMAN

Boysen GmbH Munich herewith confirms that production is in accordance with the current regulations and latest standards. The material used was received and taken from stock regularly tested. Boysen GmbH Munich commits themselves to document all original certificates in the batch. These certificates are available at Boysen GmbH Munich upon request.



* L B 9 0 7 5 0 2 *

Boysen

AEROSPACE
CONNECTING PARTS

Boysen GmbH & Co. KG · Stahlgruberring 49 · 81829 München · Germany

SACS Boysen Aerospace U.S. Inc.

Brandin ROSS
3050 W. Story Road
IRVING, TX 75038
US

DELIVERY NOTE

Please state document number for any questions:

Document no.: B907502
Customer Id: 04000 Account: 12760
Document date: 03.01.2018 Page: 1

Your Contact:

Beate BESENFELDER
Phone: +49 (89) 427421-32
eMail: bb@boysen.aero

Your order from	Reference No.	Incoterms	
07.12.17	0002290	DDP (delivered duty paid)	
Contact		DHL	
ROSS Brandin			
Thank you for your order. We confirm according to our sales requirements which are to be found under www.boysen.aero as follow:			
Pos. Part Number	Lot No.	Quantity	EA
0002 ASNA 0044-BC060L	0008149796	1.000	Pcs.
NUT			
Revision level: 16.01.2014			
MF LOT: 67978			
Your P/N: ASNA 0044-060BCL			
0045 LN 9082-8X18	0008143556	291	pcs
BOLT			
MF LOT: 310842P002F001			
0046 LN 9161-06	0008134098	100	pcs
NUT			
Revision level: 01.05.1977			
0048 LN 9178-2404E	0008107499	3.000	pcs
RIVET			
MF LOT: 235288P001F001			
0049 LN 9198-2408BF	NAH1551	2.000	pcs
RIVET			
0050 LN 9198-2408H	0008106929	855	pcs
855 pcs. available			
RIVET			
0052 LN 9338-06	0008153433	4.000	pcs
NUT			
MF LOT: 76478			
0053 LN 9338-08	0008149928	2.000	pcs
NUT			
Revision level: 01.03.2002			
MF LOT: 77193			

5000008043



* L B 8 5 2 3 0 1 *

20180131-161059/drah

Boysen

AEROSPACE
CONNECTING PARTS

Boysen GmbH & Co. KG · Stahlgruberring 49 · 81829 München · Germany

SACS Boysen Aerospace U.S. Inc.
Andreas KIRSCHNER
3050 W. Story Road
IRVING, TX 75038
US

DELIVERY NOTE

Please state document number for any questions:

Document no.: **B852301**
Customer Id: **04000** Account: **12760**
Document date: **31.01.2018** Page: 1

Your Contact:

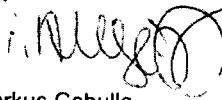
Beate BESENFELDER
Phone: +49 (89) 427421-32
eMail: bb@boysen.aero

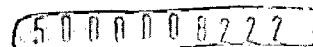
Your order from 26.11.17 Contact KIRSCHNER Andreas	Reference No. 0002270	Incoterms DDP (delivered duty paid) DHL	
Thank you for your order. We confirm according to our sales requirements which are to be found under www.boysen.aero as follow:			
Pos. Part Number	Lot No.	Quantity	EA
0001 LN 9338-05 NUT	0008155214	5.000	Pcs.

Revision level: 01.03.2002
MF LOT: 79138

Certificate of Conformity (NFL00-015C / EN10204-2.1):
We certify, unless otherwise stated, that the whole of supplies have been inspected and conform to the applicable order specifications (e.g. specification(s), drawing(s), data sheet(s) etc.).

Boysen GmbH & Co. KG, Munich


Markus Cebulla
Quality Manager



3.6.10

101a1



* L B 4 9 0 0 0 1 *

20170711-082942/msc

Boysen

AEROSPACE
CONNECTING PARTS

Boysen GmbH & Co. KG · Stahlgruberring 49 · 81829 München · Germany

SACS Boysen Aerospace U. S. Inc.
Jo Ann HALL
3050 W. Story Road
Irving , TX 75038
US

DELIVERY NOTE

Please state document number for any questions:

Document no.: B490001
Customer Id: 04000 Account: 12760
Document date: 12.07.2017 Page: 1

Your Contact:

Beate BESENFELDER
Phone: +49 (89) 427421-32
eMail: bb@boysen.aero

Your order from	Reference no.	Dispatch type	
26.06.17	00020016	DDP (delivered duty paid)	
Contact		DHL	
HALL Jo Ann			
Thank you for your order. We confirm according to our sales requirements which are to be found under www.boysen.aero as follow:			
Pos. Part Number	Lot No.	Quantity	EA
0001 LN 9038-K05014 SCREW MF LOT: 85151660093	0008141142	500	Pcs.
0002 LN 9139-M5X16 SCREW	0008133602	500	Pcs.
0003 LN 9338-04 NUT MF LOT: 74171	0008151256	1.600	Pcs.
0004 LN 9439-AM5X14 SCREW MF LOT: 85151770358	0008142078	800	Pcs.

Certificate of Conformity (NFL00-015C / EN10204-2.1):

We certify, unless otherwise stated, that the whole of supplies have been inspected and conform
to the applicable order specifications (e.g. specification(s), drawing(s), data sheet(s) etc.).

Boysen GmbH & Co. KG, Munich

Markus Cebulla
Quality Manager

12. Juli 2017 /E1



PAOLO ASTORI

DADI AUTOBLOCCANTI e MINUTERIE METALLICHE
per COSTRUZIONI AERONAUTICHE

COMPANY WITH QUALITY MANAGEMENT
SYSTEM CERTIFIED BY DNV
= EN 9100:2003 =

Capitale Sociale € 120.000,00 int. vers.
Cod. Fisc. Part. I.V.A. e R.I. Novara 00111940037
R.E.A. Novara 48580 - Albo Imp-Exp NO 09081

PAOLO ASTORI SpA - Via Mirabella, 9
28013 MAGGIATE SUP. - GATTICO (NO) - ITALY
Tel. +39 0322 838847 - Fax +39 0322 880196
www.paoastori.com

PAOLO ASTORI S.p.A.

Page 2 of 3

08151256

3 Final inspection measurements

3.1 Summary table

Test description	Unit	Min allowed	Max allowed	Min found	Max found
VISUAL INSPECTION	test PASSED				
DIMENSIONAL INSPECTION	test PASSED				
DISCONTINUITY INSPECTION	test PASSED				
AXIAL TENSILE LOAD	N lbf	9700.00 2180.6467	n/a	10100.00 2270.5703	10100.00 2270.5703
MAX LOCKING TORQUE 1°CYCLE	Nm lbf-in	0.14 1.2391	0.90 7.9657	0.74 6.5496	0.82 7.2576
MAX LOCKING TORQUE 7°CYCLE	Nm lbf-in	0.14 1.2391	0.90 7.9657	0.48 4.2484	0.50 4.4254
MAX LOCKING TORQUE 15°CYCLE	Nm lbf-in	0.14 1.2391	0.90 7.9657	0.44 3.8943	0.48 4.2484
MIN.BREAKAWAY TORQUE 1°CYCLE	Nm lbf-in	0.14 1.2391	0.90 7.9657	0.64 5.6645	0.72 6.3725
MIN.BREAKAWAY TORQUE 7°CYCLE	Nm lbf-in	0.14 1.2391	0.90 7.9657	0.46 4.0713	0.50 4.4254
MIN.BREAKAWAY TORQUE 15°CYCLE	Nm lbf-in	0.14 1.2391	0.90 7.9657	0.42 3.7173	0.46 4.0713
HARDNESS TEST	HRC HRC	n/a	44.00 44.0000	41.00 41.0000	42.40 42.4000
APPEARANCE OF COATING	test PASSED				
CAD PLATED ACC. TO EN2133	MICRON micron	5.00 196.8504	15.00 590.5512	9.53 375.1969	9.53 375.1969

4 Components and raw materials

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Component name	Component batch	Material batch	Heat	Material spec
		-3310	10269480	AMS6322N
Heat chemistry	C(0.40) Mo(0.22)	Si(0.26) Ni(0.44)	Mn(0.87) Cu(0.08)	P(0.009) S(0.005) Cr(0.54)

5 Special processes

Component name	Process	Specification
NUT	CAD PLATING	AMS-QQ-P-416
NUT	NDT	ASTM E 1444
NUT	LUBRICATION	NASM25027NAS3356(AS5272)



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6 Hardness

Component name	min hardness	max hardness	avg hardness
NUT	81.10 HR15N	81.70 HR15N	81.37 HR15N

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